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ABSTRACT

This longitudinal study identified hard-to-manage older toddlers and younger preschoolers, assessed the developmental course and prognostic significance of their difficult behavior, and delineated family factors possibly associated with early and persistent problems. Obtained from parents, teachers, and observers, cross-situational and multi-dimensional data concerned 30 boys and 16 girls termed problem children and 11 boys and 11 girls constituting a comparison group. Subjects were assessed at approximately 3, 4, and 6 years of age. Findings indicated that parental complaints concerning toddlers/preschoolers were, for the most part, indicative of real difficulties. Lower social class, greater family stress and disruption, and a negative mother-child interaction were associated with maternal ratings of more severe symptomatology at initial assessment. Follow-up data indicated that children who showed externalizing problems of at least moderate severity in the early preschool years were at a relatively high risk for persistent problems at school entry. Predictors of persistent problems at age 6 included a negative mother-child interaction, higher concurrent levels of family stress and lower social class, and initial maternal ratings of more severe hyperactive and aggressive symptomatology at 3 years of age. (RH)

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Family Characteristics and Child Behavior as Precursors of Externalizing Symptomatology at School Entry

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This paper was presented as part of a symposium entitled "Family Characteristics and Child Behavior as Precursors of Psychological Disorder: Longitudinal Perspectives on Children at Risk" (Susan B. Campbell, Chair) at the biennial meeting of the Society for Research in Child Development, Toronto, Ontario, April 27, 1985.

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Three-year old Jimmy was brought to his pediatrician because his parents were dismayed by his high energy level, difficulty amusing himself, frequent temper tantrums, aggressive play with peers, and lack of response to discipline (Figure 1). They described him as rarely sitting still, tending instead to race around, running rather than walking, jumping on furniture, and otherwise creating a minor cyclone each time he entered a room. Jimmy's play consisted of brief attractions to new toys which were often dismantled rather than played with and he tended to prefer active toys like his tricycle and trucks to quieter toys such as legos or puzzles. His room was always a shambles since he insisted on removing all his toys from his toy box, though none captured his attention for more than a few minutes. Instead, when playing alone, Jimmy's attention shifted rapidly from one toy to another and fantasy play was rare, though he occasionally raced around playing "superman." His mother did find that his attention was somewhat more focused when she played with him, but he was rarely able to last through more than the first few pages of a storybook. Unfortunately, Jimmy's mother rarely had any energy left for quiet play with him since he demanded almost constant attention and supervision. He was always getting into things he shouldn't and he tended to experiment with things recklessly without any thought to the potential damage he might inflict on himself or others. With other children, Jimmy quickly became over-excited and the toy struggles and rough-and-tumble play typical of preschoolers tended to escalate into kicking, hitting, and hairpulling. And, as much as he loved to play with other

children, most other parents no longer welcomed him into their homes or backyards. Jimmy's mother got little relief since it was difficult to take him on outings and she was afraid to leave him with a babysitter. Placement in preschool was out of the question. But, she was exhausted and becoming more and more desperate, since Jimmy's problems appeared to occupy her constantly and he had been getting steadily more difficult since he started to walk.

Jimmy's behavior sounds quite typical of the active and exuberant preschooler who is particularly difficult for parents to manage. His behavior also raises a number of questions with implications for an understanding of early development. Are his parents providing an accurate picture of his daily behavior or an exaggerated account colored by parental frustration, intolerance, poor management strategies, and/or a lack of knowledge about the usual behaviors of preschoolers? Assuming that Jimmy's behavior is truly difficult, are we dealing with a transient developmental phase or with early manifestations of hyperactivity, conduct disorder, or some combination of the two? What are the prognostic implications of these behaviors in this age group? Are there particular family and child characteristics which predict prognosis differentially? What treatment strategies are most effective?

These difficult behaviors must first be considered within a developmental context. The establishment of independence, satisfactory peer relations, and appropriate levels of self-regulation are among the major tasks of this developmental period (Sroufe, 1979); thus, Jimmy's defiance, limited

self-control, and difficulties with cooperative play may be an exaggeration of typical and age-appropriate behaviors in a youngster who, for whatever reason, is struggling with these difficult developmental issues. By age five or six, the successful resolution of these struggles may be reflected in more cooperative interaction with peers, less defiance with parents, and enhanced ability to regulate impulsivity, attention, and aggression. On the other hand, the youngster who does not ultimately negotiate this difficult developmental period satisfactorily may be at risk for continued problems which are likely to interfere with family and peer relations as well as academic achievement. There is surprisingly little data, however, addressing the follow-up status of hard-to-manage toddlers and preschoolers. What little data there are highlight the importance of family factors (e.g., Richman et al., 1982).

It is obvious that children's successful adaptation in the family and the peer group is mediated, in part, by qualitative features of the mother-child relationship and by other family factors associated with parenting skill and the emotional climate of the family (e.g., Sroufe, 1983; Lewis et al., 1984). Parent attitudes, childrearing practices, and the nature of ongoing parent-child relations will interact with child characteristics to determine how well children adjust to the considerable cognitive, social, and emotional demands of the toddler and preschool years. Family stress, likewise, appears to be related to family functioning and the quality of the mother-child relationship (e.g., Egeland & Farber, 1984; Richman et al., 1982) and is associated with children's adaptation to various developmental

challenges (e.g., Crockenberg, 1981; Lewis et al., 1984; Rutter, 1981).

With these issues in mind, we have been involved in a longitudinal study to identify young children who are hard-to-manage in late toddlerhood and the early preschool period, to assess the developmental course and prognostic significance of difficult behavior in young children, and to delineate family factors that may be associated with both early and persistent problems. Our study involves collection of data which are cross-situational (home, school, lab), multi-dimensional (interview, questionnaire, observational, psychological test), and obtained from several independent sources (parents, teachers, observers). Data were obtained first in toddlerhood and the early preschool years, again at age four, and most recently at school entry when children were six.

In the present paper I will briefly summarize data from ages three and four. I will then review follow-up data obtained at age six with an emphasis on predictors of persistent problems. Issues raised by these data will then be discussed.

Subjects for this study were recruited from pediatricians' offices, toddler groups, and mothers' day out programs. A poster describing the project invited participation from parents who were concerned about their child's activity level, short attention span, difficulty playing alone, tantrum behavior, and defiance. Thus, we recruited a sample of youngsters whose parents were concerned about externalizing problems. Parents with no complaints were also invited to participate as a comparison group.

To be eligible for the study, children had to be between

two and three years old (25 to 47 months) at intake, in good physical health, and without signs of sensory or intellectual impairment (IQ > 75), gross brain damage, grossly delayed language development, or severe psychiatric disorder (i.e., psychotic or autistic-like behavior). After initial screening, the final sample of problem children consisted of 30 boys and 16 girls. Eleven boys and 11 girls constituted the comparison group. The mean age at intake was 35 months. Five children in the problem group and two in the comparison group were from mother-headed, single parent households; three children in the problem group had been adopted in early infancy. A range of social class was represented, from lower class unskilled workers to upper middle class professionals. The mean social class at intake, as determined by the Hollingshead Four-Factor Index (Hollingshead, 1975), was 46.35 for the problem group and 56.33 for the comparison group.

Children were assessed at intake, at a one-year follow-up when they were four (mean age = 46.57 months), and again two years later at age six (mean age = 72.78 months). Of the 68 children in the initial sample, some age four follow-up data were obtained on 54 (35 problems, 19 controls). Attrition from ages four to six was minimal. Thirteen families from the problem group were lost to follow-up. These were among the more dysfunctional families in the sample, with more family disharmony, psychosocial stress, and a less stable job history. A family disruption rating (1 to 3, with 3 reflecting more disruption) was given at intake. Families who were lost to follow-up were significantly more impaired than families in the problem group who were maintained in the study

(2.46 vs. 1.47, t = 4.11, p = .001). Similarly, drop-outs were lower in social status (39.77 vs. 49.31, t = 2.29, p = .03). Only one control child was lost to follow-up.

At intake and age six follow-up, mothers were interviewed during a home visit; (see slides) they also completed questionnaires describing their child's behavior at all three data collection points. In addition, children were observed during free play, structured tasks, and mother-child interaction in the laboratory at intake and at both follow-up assessments. Children were also observed in their preschool and elementary school classrooms and teachers completed questionnaires. Finally, a blind and independent interviewer administered a structured interview to mothers to determine whether children met DSM-III criteria for "Attention Deficit Disorder" at age six. (Details of methodology may be found in Campbell & Cluss, 1982; Campbell et al., 1982; 1984; submitted).

Insert Tables 1 and 2 about here.

Summary of Findings at Ages Three and Four.

Analysis of intake measures indicated that despite some heterogeneity in the problem group, parent-referred children were significantly more active, inattentive, and impulsive than controls during both free play and structured tasks (Campbell et al., 1982). (Negative mean values appear in Table 4 because some measures were transformed to standard scores.) Problem families were also characterized by more stress and a more negative

mother-child interaction. Independent observations in preschool confirmed that problem youngsters were also more aggressive with peers and more non-compliant with teacher requests than comparison children (Campbell & Cluss, 1982). Ratings both by parents and by preschool teachers indicated concern about a range of externalizing symptoms including impulsivity, hyperactivity, aggression, and discipline problems. Follow-up at age four revealed that problems were likely to persist and were more than a transient phase of difficult behavior - the "terrible twos" (Campbell et al., 1984).

Insert Tables 3, 4, and 5 about here.

Thus, these findings indicate that parental complaints in late toddlerhood and the early preschool years are, for the most part, indicative of bona fide difficulties reflecting aggression, non-compliance, inattention, impulsivity, and overactivity. Further, lower social class, greater family stress and disruption, and a negative mother-child interaction (observed in the lab at age three) were associated with maternal ratings of more severe symptomatology at initial assessment (Campbell, Breaux, Ewing, & Szumowski, submitted).

Assessment of Problem Severity at Age Six. Three criteria were used to assess problem severity at age six: (1) whether the child met DSM-III criteria for Attention Deficit Disorder assessed via an independent and blind interview with mother; (2) maternal ratings of current problem severity (none or mild vs. moderate or severe) obtained by the home visitor during

the structured follow-up interview; and (2) maternal ratings of aggression in the clinical range (T>70) on the Achenbach Child Behavior Checklist. As can be seen in Table 6, 10 children (31%) in the original problem group met DSM-III criteria for Attention Deficit Disorder at age 6; similarly 10 children were seen as showing significant aggression, but only 5 of these children also met DSM-III criteria. Children who met either the DSM-III or the aggression criteria were also rated as showing moderate to severe problems. In all, 16 problem children (50%) were rated as showing significant problems at follow-up on at least one of these measures. No control child met DSM-III or aggression criteria. One control girl was rated as showing moderate problems.

Insert Table 6 about here.

These rates of continued disorder are certainly far higher than one would expect on the basis of chance. Further, they are consistent with those reported by Richman et al.(1982) who followed a sample of behavior problem three-year-olds to age eight. These data indicate clearly that children who show externalizing problems of at least moderate severity in the early preschool years are at a relatively high risk for persistent problems at school entry, according to maternal report.

Within the problem group, children seen as showing persistent problems differed from youngsters rated as improved and from controls on a number of teacher report and observational measures as well as parent report measures obtained at age six. For example, they were rated as more aggressive and as having more

peer problems at home and school; independent and blind observations of classroom behavior also indicated that they engaged in more disruptive and aggressive behavior. Thus, maternal reports of persistent problems at age six were confirmed by data obtained from other sources and in other settings.

Predictors of Symptom Severity at Age Six. A series of hierarchical multiple regression analyses were conducted to examine the contribution of family and child variables, assessed at age three, to maternal ratings of aggression (T score on Achenbach Child Behavior Checklist) and hyperactivity (DSM-III symptom ratings on the SNAP Questionnaire) at age six. Family variables included social class, a rating of family stress[1], number of sibs, and a composite score[2] reflecting negative and controlling maternal behavior observed in the lab during a mother-child play interaction. Lower social class and higher rates of negative maternal behavior were particularly strong predictors of persistent problems at age six. Negative maternal behavior at age three predicted 15% ($N = 52$, $F = 10.90$, $p < .01$) of the variance in hyperactivity ratings and 16% ($N = 52$, $F = 9.79$, $p < .01$) of the variance in aggression ratings at age six follow-up. While stress ratings at age three were not predictive of negative outcome at age six, a concurrent measure of family stress[3] was associated with hyperactivity ratings at age six follow-up ($R = .537$, $F = 6.33$, $p = .001$).

Insert Table 7 about here.

Child variables examined as predictors of outcome

included sex, a composite score derived from observations of free play[4], a composite score[5] reflecting negative and non-compliant child behavior observed during interaction with mother in the lab at age three, and initial maternal ratings of hyperactivity and aggression. Negative child behavior and higher initial ratings of symptoms predicted higher follow-up ratings of both aggression and hyperactivity at age six. More active and inattentive behavior during free play was also predictive of higher hyperactivity ratings at age six follow-up.

These analyses pinpoint several predictors of persistent problems at age six in children who were seen as hard-to-manage three-year-olds. These include a negative mother-child interaction characterized by more maternal reprimands and directives and by more aggressive, irritable, and non-compliant child behavior; higher concurrent levels of family stress and lower social class; and, initial maternal ratings of more severe hyperactive and aggressive symptomatology at age three. These findings are in general agreement with those from several follow-up studies of hyperactive school-age children (see reviews by Milich & Loney, 1979 and by Weiss, 1983) and with Richman et al.'s (1982) epidemiological study of preschoolers.

Persistence of problems, then, appears to be related to child effects, parent effects, and social context effects. Children who were rated as only moderately hyperactive and noncompliant at age three were less likely to show persistent problems than children who were rated as both more hyperactive and more aggressive, particularly when family stresses were relatively low and the mother-child relationship relatively more positive.

This may be interpreted to indicate that children with less severe initial problems are showing more transient problems. They are also likely to be easier to parent and, therefore, a negative and coercive pattern of parent-child interaction may be less likely to develop, something which ultimately may mediate good outcome. These data may also suggest that initial symptoms, including defiance and aggression, are less likely to escalate when parents are less confrontative and more skilled at redirecting and controlling difficult behavior. Furthermore, this more adaptive approach to parenting may be easier for parents who are not faced with additional family or external stresses.

On the other hand, childhood hyperactivity and defiance, along with intolerant maternal attitudes and relatively rigid disciplinary strategies, probably converge to lead to a negative style of mother-child interaction which tends to contribute to continued problems. This has been well described by Barkley (in press) and others (Patterson, 1980). Further, family stress may impact upon the child directly by increasing tension which exacerbates or maintains active and defiant behavior or indirectly through its impact on maternal (and paternal) behavior.

It is likely that these child, parent, and context factors are weighted differently for different children and families and that their causal interconnections vary as well. The richness of our data are not fully captured by ANOVA's and multiple regressions. Our extensive contact with study families suggests several interpretations to these findings (See Table 8). On the one hand, it appears pretty clear that a good outcome only occurs in the context of a positive mother-child relationship.

However, even excellent parenting does not guarantee a good outcome. Some children with surprisingly patient, consistent, and supportive parents, an apparently stable family environment, and severe initial symptoms continued to have serious problems possibly an indication of biological/constitutional vulnerability; for others, symptoms waxed and waned, apparently in tandem with environmental stresses or changes in the family. On the other hand, the combination of moderate to severe initial symptoms, high levels of family stress, and a negative mother-child relationship was uniformly associated with poor outcome. Finally, a negative mother-child interaction appeared sufficient, but not necessary, for a negative outcome, at least as assessed by these maternal report measures.

Insert Table 8 about here.

High levels of initial symptoms and a negative mother-child interaction were much stronger predictors of outcome than family stress. It is not likely that family stress alone will contribute to a negative outcome when initial symptoms are only moderate and mother-child interaction relatively positive. On the other hand, several youngsters with only moderate initial problems, but a negative mother-child relationship, living in a highly stressed family, appeared to have more serious difficulties at follow-up. In other words, if one were to accept a diathesis-stress model, one might place more emphasis on the diathesis or constitutional vulnerability in some cases, the stress (as indexed by poor parenting and external stress) in

others, and their interaction in still others.

In summary, then, severe initial problems with hyperactivity and aggression, particularly when combined with moderate levels of ongoing stress and/or a conflictful mother-child relationship appear to predict continuing difficulties at school entry among youngsters seen as hard-to-manage three-year-olds. We are currently recruiting a new sample of teacher-referred active and aggressive preschoolers and obtaining data on their developing strategies of self-control, teacher perceptions of social competence, and detailed data on the nature of their peer interactions as well as more complete data on marital and family functioning in order to replicate and extend these findings; we hope to learn more about the ways in which the development of these youngsters goes awry in hope of eventually developing theoretically meaningful approaches to preventive intervention with young children and their families.

Footnotes

[1]Family stress at age three was rated on a 3-point scale. A rating of 1 reflected a stable, two-parent family without apparent problems other than difficulties managing the target child. A score of 2 indicated mild to moderate disruption such as a stable, one-parent family, a family where one parent, usually the father, was unavailable due to work demands, family conflict due to marked parental disagreement over how to handle the target child, or a family in which both parents were currently unemployed. A score of 3 indicated serious chronic and/or multiple stressors such as a history of chronic marital dysfunction, repeated separations, chronic parental mental or physical illness, chronic unemployment, or the family currently going through a particularly stressful and vindictive divorce. This score was derived from the interview material independently by two members of the project staff who knew the families well. Inter-rater agreement on this scale was satisfactory ($r = .85$, $df = 66$, $p = .000$).

[2]The negative maternal behavior composite score was computed by summing standard scores for rates of negative feedback, reprimand, and impulse control statements. These were coded during an unstructured mother-child play session observed in the lab at age three.

[3]Stress at age six was assessed during a lengthy interview conducted during a home visit. An objective stress score was derived by summing the number of specific stresses reported by mothers. These included: separated since last visit, single

parent, parental unemployment, serious illness in nuclear family, new baby, and behavior problems with sibling of target child.

A subjective stress index was obtained as well. Mothers were asked to list recent events which were stressful or upsetting and to rate them on a 5-point scale of degree of upset. The sum of these stress ratings served as the measure of subjective stress.

[4]The free play composite score was derived from observations of free play in the lab and included measures of activity shifts, short toy contacts (<20"), non-toy contacts minus "long" (>120") contacts. Scores were standardized and summed. The free play session was different from the mother-child play interaction.

[5]Child negative behavior was assessed in the unstructured mother-child play. The composite score included noncompliant, negative-irritable, and aggressive play codes.

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FIGURE 1

TABLE 1

Summary of Relevant Adult Report Measures Obtained at Ages Three and Six

Age Three	Age Six
Maternal Reports	
Structured Interview	Structured Interview
Preschool Behavior Questionnaire	Child Behavior Checklist
Activity Scale	SNAP (DSM-III criteria)
Teacher Reports	
Preschool Behavior Questionnaire	Child Behavior Checklist

TABLE 2

Summary of Relevant Observational Measures
Obtained at Ages Three and Six

Age Three	Age Six
Laboratory Measures	
Free Play	Free play
Out-of-seat/off-task	Out-of-seat/off-task
Impulsive responses (cookie task)	Error score (MFF)
Negative maternal behavior	
Negative child behavior	
Classroom Measures	
Aggressive	Aggressive/disruptive
Noncompliant	Hyperactive/distractible
Wandering	

TABLE 3

Comparisons between Problem and Control Children on Maternal Report Measures of Behavior Problems

	Problem	Control		
Measure	Mean	Mean	F	p
Behar	(N = 46)	(N = 22)		
Hostile	8.93	5.05	12.03	<.001
Anxious	5.13	4.05	2.62	N.S.
Hyperactive	5.37	2.18	50.33	<.001
Total	24.24	13.59	21.40	<.001
Werry et al.	(N = 44)	(N = 22)		
Activity	35.32	18.14	30.20	<.001

TABLE 4

Group Comparisons at Age Three

Measure	Problem (M)	Control (M)	p
Free play composite	.414	-.829	.02
Impulsive responses	1.432	.273	.004
Negative child behavior	.354	-.703	.12
Negative maternal behavior	.492	-.984	.01
Family disruption rating	1.783	1.182	.000

Table 5

Comparisons between Problem and Control
Preschool Attenders on Teacher Ratings of Behavior Problems

	Problem	Control		
	Mean	Mean	F	p
Behar	(N = 20)	(N = 13)		
Hostile	6.00	0.54	11.16	<.002
Anxious	3.40	1.62	2.75	N.S.
Hyperactive	3.30	0.39	13.11	<.001
Total	16.20	3.39	13.50	<.001

TABLE 6

Problem Severity Indices at Age Six
Follow-up

Problem Children
(N=32)

	Yes		No	
	n	(%)	n	(%)
DSM-III for ADD	10	(31)	22	(69)
Rating (moderate to severe)	11	(34)	21	(66)
Aggression (T>70)	10	(31)	22	(69)
Any one criterion	16	(50)	16	(50)
All three criteria	5	(16)	27	(84)

TABLE 7

Age Three Predictors of Symptom
Severity at Age Six

Social class

Family stress and disruption

Negative and controlling maternal behavior

Negative and non-compliant child behavior

Maternal hyperactivity rating

Maternal aggression rating

Table 8

HYPOTHETICAL RELATIONSHIP BETWEEN

RISK FACTORS AND OUTCOME

	High Initial Symptoms				Moderate Initial Symptoms			
Mother-child Interaction	-	-	+	+	-	-	+	+
Family stress	H	L	H	L	H	L	H	L
Outcome	-	-	±	±	-	-	+	+